

TABLE 2-2

DATA QUALITY OBJECTIVES FOR THE ACOUSTIC DOPPLER CURRENT PROFILER SURVEY
(Page 1 of 3)

USEPA DATA QUALITY OBJECTIVE STEP	FIELD ACTIVITY Acoustic Doppler Current Profiler Survey
STEP 1: State the Problem	
<i>Problem Statements</i>	1) An improved understanding of flow patterns within Lake Belton is needed. 2) The potential for deep-water currents that could provide a preferential flow path for perchlorate needs to be evaluated.
<i>Planning Team Members</i>	Brian Condike – USACE Project Manager David Ebersold – MWH Project Manager Kyle Headley – BRA Project Manger Dr. Todd Anderson – TIEHH
<i>Primary Decision Makers</i>	Brian Condike – USACE Project Manager David Ebersold – MWH Project Manager Kyle Headley – BRA Project Manger
<i>Relevant Deadlines</i>	Four ADCP surveys need to be performed during 1) thermally stratified (summer and winter) and 2) well mixed (early spring and late fall) conditions.
STEP 2: Identify the Decision	
<i>Principle Study Questions</i>	1) How do current profiles vary throughout Lake Belton and how do the currents vary seasonally? 2) Are deep-water currents present in Lake Belton that could provide a preferential flow path for perchlorate?
<i>Alternate Actions</i>	Data will be used in conjunction with other Bosque and Leon River Watershed Study data to evaluate potential risks to human health and the environment.
STEP 3: Identify the Inputs to the Decision	
<i>Environmental Measurements</i>	The ADCP survey will include current measurements at twenty one (21) transects across Lake Belton. The selected ADCP equipment is capable of recording the measurement data. ^(a) The ADCP instrument frequency will be based on the known lake depths in order to obtain the greatest resolution and accuracy possible.
<i>Basis for Action Level</i>	Current profiles may be used to assess the fate and transport of perchlorate in Lake Belton.
(a)	Please note that the term “action level” refers to the value chosen in the EPA DQO process that provides the criterion for resolving the decision statements. ADCP Acoustic Doppler Current Profiler

TABLE 2-2

DATA QUALITY OBJECTIVES FOR THE ACOUSTIC DOPPLER CURRENT PROFILER SURVEY
(Page 2 of 3)

STEP 4:

Define Study Boundaries

Population of Interest Current profiles at each transect across Lake Belton.

Spatial Boundaries The spatial boundary of the study area is defined by the Lake Belton shoreline. The boundary of the study area is shown on Plate 1 of this FSP.

Temporal Boundaries As stated above, the ADCP surveys will be completed during periods of thermally stratified (summer and winter) and well mixed (early spring and late fall) conditions. Each survey will consist of up to 5 days of data collection.

Scale of Decision Making Quarterly technical memorandums will be prepared that present the data and discuss the results and make recommendations for modifying the monitoring requirements, if necessary.

Practical Constraints on Data Collection Practical constraints include operator error when programming and calibrating the ADCP survey equipment, incorrect boat speed, and malfunction of the ADCP equipment. Operator error will be minimized by complying with the ADCP user manuals and utilizing an ADCP professional and an experienced boat driver during the survey. Equipment malfunction will be controlled to the extent possible by inspecting the ADCP and verifying the output of the ADCP during the survey.

STEP 5:

Development of Decision Rules

Statistical Parameter of Interest Current magnitude and direction at each ADCP transect surveyed in Lake Belton.

Scale of Decision Making Data will be considered representative of the transect location. Extrapolation of the data may be possible between transects.

Action Level The action level is the resolution or accuracy of the selected ADCP instrument.

Alternative Actions See previously defined alternate action in Step 2.

Decision Rules Data will be assessed to resolve the decision statements presented above.

STEP 6

Specify Tolerable Limits on Decision Errors

Null Hypothesis Deep-water currents exist in Lake Belton that provide a preferential flow path for perchlorate.

Alternate Hypothesis Deep-water currents do not exist in Lake Belton that provide a preferential flow path for perchlorate.

(a) Please note that the term “action level” refers to the value chosen in the EPA DQO process that provides the criterion for resolving the decision statements.

ADCP Acoustic Doppler Current Profiler

TABLE 2-2

DATA QUALITY OBJECTIVES FOR THE ACOUSTIC DOPPLER CURRENT PROFILER SURVEY
(Page 3 of 3)

STEP 6

**Specify Tolerable Limits on
Decision Errors (continued)**

Gray Region Presence of deep-water currents in Lake Belton is not clearly indicated by the data.

*Tolerable Probability of
Making an Incorrect Decision* Trends in ADCP data will be assessed following each of the four individual surveys.

STEP 7:

**Optimize the Design for
Obtaining Data**

ADCP equipment will be used to collect current magnitude and direction data. The data collection design is described in this field sampling plan.

(a) Please note that the term “action level” refers to the value chosen in the EPA DQO process that provides the criterion for resolving the decision statements.

ADCP Acoustic Doppler Current Profiler